

REMARKS

Applicants note that the Office raises a non-statutory double patenting rejection of all the claims of this application from all of the claims of U.S. Patent No. 6,143,347. Applicants respectfully disagree that the presently claimed subject matter is fully disclosed in the '347 patent. The present application describes and claims mid-season harvested products and harvesting methods of Vernia and/or Frost from orange cultivars, whereas the '347 patent of applicants is directed to early season harvested products and harvesting methods utilizing in cultivars other than Vernia and/or Frost. Nevertheless, applicants note that a Terminal Disclaimer already has been filed with respect to the '347 patent, same having been filed with the Amendment of June 28, 2001 in now-abandoned Serial No. 09/583,334, of which the present application is a continuation. Applicants respectfully believe that this double patenting rejection has been obviated.

Page 1 of the specification is amended as requested at the bottom of page 2 of the Office Action.

Claims 1-30 are rejected under 35 U.S.C. §103(a) from the following:

primary references: Bonaventura et al. or the Gmitter article;

secondary references: Moore (Proctor & Gamble) EP 0288103, Castle "Citrus Industry" article of June 1999, Castle Declaration, Tresser, Lafunte et al. article, and Pao et al article; and

tertiary references: Atkins et al. U.S. Patent No. 3,917,867, Chenchin et al U.S. Patent No. 6,007,863, Castle horticultural field day article, Gmitter, Castle Food

Industry short course 1992 article, Lee and Castle 2001 article and Pio et al. article.

The claims are presently amended to define the invention with more particularity and in a manner which illustrates applicants' invention over the two primary references and the numerous secondary and tertiary references relied upon which are noted above. All of the claims more particularly define the relevant harvest time as being a mid-season time period. The claims further specify that the mid-season orange juice is blended with a different juice source, including those not harvested during the mid-season time period. Furthermore, the claims specify that the mid-season not from concentrate blended orange juice product has sensory qualities that are superior to the sensory qualities of not from concentrate orange juice of either earlier season or late season fruit harvested during the mid-season time period.

Furthermore, various dependent claims directly recite respective specific sensory qualities in respect of which the claimed juice product is superior when compared with earlier season juices, namely Hamlin, and late season juices, namely Hughes Valencia and Rhode Red Valencia not from concentrate juices. The various references which have been applied and which are listed above provide no teaching of these claimed sensory qualities with respect to any of the claimed mid-season juice blends. All of the claims specifically identify the mid-season juice source as Vernia and/or Frost not from concentrate and juices. As has been previously established during the prosecution of this invention, it is known in the art that not-from-concentrate juices are pasteurized juices.

Because even this wide combination of references does not teach or suggest that Vernia and/or Frost juices would provide

blended juices having superior sensory qualities when pasteurized into not from concentrate juice, the claimed invention would not have been obviously arrived at by one of ordinary skill in the art. Applicants respectfully assert that the Office has not made out a *prima facie* case of obviousness.

Allowing for an argument that a *prima facie* case of obviousness has been presented, applicants have provided data and information to rebut same. Data in support includes that of the Examples filed with the present application, together with the various Figures of the application. Especially demonstrative is Fig. 1 of the present application. From this Fig. 1 it is clear that the "overall sensory quality score" (a combination of a plurality of positive and negative specific sensory qualities) of a Vernia not from concentrate juice is greater than that of either the earlier season juice (Hamlin) or the late season (Valencia) juices during this mid-season time period. As specifically noted in the last paragraph of Example 1, which is on page 23, the data of Fig. 1 concisely illustrate the gap-filling characteristics achieved by the present invention. The mid-season peak properties of the invention are provided just as they are needed, when the earlier season cultivars are decreasing in overall sensory quality and while the late season Valencia cultivars are still only on an increasing slope in overall sensory quality. Furthermore, the Vernia is shown in Fig. 1 as having overall sensory quality that is superior to either the earlier or the late season not from concentrate juice.

In order to allow the Office to fully consider these sensory quality features fully, several claims have been modified from pure method claims to product-by-method claims. After all, the sensory qualities of these claims are properties

of the claimed not from concentrate orange juice product. More specifically, independent claims 21 and 26 have been amended to product-by-method claims, and claims 3-15 have been amended into dependent product claims, each depending from claim 21.

As further evidence of unobviousness in rebutting a possible case of *prima facie* obviousness, information in the present record shows that one cannot predict sensory qualities of not from concentrate (NFC) juice from the qualities and characteristics of the originating juice before made into NFC juice under commercial processing conditions. Thus, the various references, which provide no teaching concerning sensory qualities of the type claimed or concerning NFC juice, cannot be used to obviously predict sensory qualities of NFC juice made therefrom.

As discussed in some detail in the Amendment dated January 16, 2003 in the parent application, Declarations of the inventors Taggart and Keithly show the unpredictability of processing orange fruit into NFC juice. The unpredictability is in the specific sensory qualities of the NFC juice or in juice blends incorporating the NFC juice. Thus, while Ambersweet and blood orange fruits exhibit exceptional color and BAR (and other juice chemistry properties) these color and juice chemistry attributes do not determine sensory qualities. In the case of blood orange juice and Ambersweet orange juice, each tested well for favorable sensory qualities. However, when each was processed into NFC orange juices, these favorable sensory properties did not hold. Neither blood orange or Ambersweet juices had suitable juice sensory attributes when processed into NFC juice.

This is not the case for the claimed products. The claimed Vernia-originating and/or Frost-originating NFC juices do

exhibit suitable juice sensory attributes. They do so even after the rigors of commercial NFC juice processing. This is illustrated, as noted previously, in Fig. 1 of the present application which shows overall sensory quality score superior to that of otherwise well-accepted commercial orange fruit sources, namely Hamlin, Hughes Valencia and Rhode Red Valencia. This is clearly evident within the mid-season time period specified in the present claims. Until made up into products according to the invention, one could not have obviously predicted that the cultivars encompassed within the present claims would provide superior sensory quality scores when pasteurized and processed into NFC juice, while two other well-known cultivars, blood orange and Ambersweet, would provide unsuitable juice sensory attributes when pasteurized and processed into NFC juice.

Unless one is using an impermissible "obvious to try" standard in judging obviousness, the lack of obvious predictability in this context shows that the cited references do not support an obviousness determination.

Additionally, applicant's claimed invention solved a problem which has existed in the NFC industry for many years. The mid-season time period of the present claims heretofore had been a "gap". Orange cultivars harvested during this mid-season time frame did not exhibit adequate sensory qualities when compared with the industry standard earlier season source (Hamlin) or the late season standard (exemplified by Hughes Valencia and Rhode Red Valencia). This gap is shown in present Fig. 1. The dotted lines in Fig. 1 show how the present invention bridges this commercially significant gap.

Applicants now discuss the various cited references to illustrate how they are deficient in filling this gap and in

providing an obvious solution to the mid-season NFC sensory problem solved by the present invention. In fact, this mid-season NFC sensory gap is not expressly addressed in the references. The references do not provide a solution to this NFC "gap" problem, providing no teaching of how to maintain overall sensory quality of juices freshly harvested during the mid-season and commercially processed into NFC juice.

The Primary References

Bonaventura et al. has been discussed extensively in prior prosecution. In summary, Bonaventura has absolutely no teaching of NFC mid-season juices or their production. Neither Vernia nor Frost cultivars are taught in Bonaventura. As previously established, Bonaventura does not relate to NFC pasteurized juices. Bonaventura clearly does not teach incorporating Vernia and/or Frost juices into NFC juices.

Bonaventura reports upon storage experiments for blood oranges. The principle variant in these tests was the storage temperature. In essence, Bonaventura reports that, if one follows blood orange production in Sicily, the shelf life of extracted juices can be extended by refrigeration temperatures bordering upon freezing temperatures. Bonaventura teaches in the very first paragraph that the Bonaventura juices are: "neither pasteurized nor frozen, but simply refrigerated" (emphasis added). Since they are simply refrigerated and not pasteurized, they cannot be NFC juices, as applicants claim.

As previously noted, the very type of orange category, namely **blood oranges**, which are exclusively the subject of Bonaventura were found in the Taggart and Keithly Declarations to be unsuitable for use in the purview of the invention, namely commercially produced not from concentrate

orange juice. Concerning blending of juices, Bonaventura's reported blends of blood orange juices were combinations of fresh-from-the-tree blood orange juice **and** juice from third quality blood oranges from whole fruit packing houses.

Bonaventura et al teach blending these **different sources of the same cultivars**. This reference has no suggestion of combining a mid-season cultivar with another cultivar, such as Hamlin etc.

The other primary reference, Gmitter, is characterized by the Office as disclosing that it is known to test orange cultivars. The Office recognizes that this reference is related to tree breeding. The Office states that such activities recognize juice quality and maturity season as major forces in breeding. Perhaps the Gmitter article recognizes the problem, or more properly a portion of the problem, solved by applicants. However, this does not provide a solution and does not provide the solution achieved by applicants. The Office Action states, in the middle of page 4, that:

Certainly, it would have been within the skill of the ordinary worker to choose a particular cultivar, which exhibits various characteristics such as sweetness and brix and acidity to blend with other juices since this is the object of the above research and is also disclosed by these additional references.

The above position does not truly state why one could predict that Vernia or Frost have superior sensory qualities as claimed when made into NFC juice products, such being superior to industry standards which mature both earlier and later.

The Secondary References

The Office states that Moore discloses that it is known to mix orange juices for achieving desirable BAR values. While

applicants' claims do recite superior BAR values, a BAR value is a juice chemistry attribute which is not significantly affected by the NFC processing activities which include pasteurization. As noted previously, the invention claims specific superior sensory qualities, which are not juice chemistry characteristics. Instead, they are the qualities that are specified in the claims, including "overall quality sensory scores" (claim 6), "sensory green character" (claim 7), "sensory bitterness character" (claim 8), "sensory feeling factors character" (claim 9), "sensory sourness character" (claim 10), "sensory other citrus notes character" (claim 11), "sensory packaged notes character" (claim 12), "sensory total orange character" (claim 13), "sensory low orange character" (claim 14) and "sensory sweet character" (claim 15). None of the references address these claimed features of applicants' juices.

Castle '99 (Citrus Industry) is characterized in the Office Action as disclosing the Vernia cultivar having good color and earlier maturity than Hughes, indicating "an earlier maturity than Hughes with excellent color (Table 6) and color [sic. flavor]. Table 6 of Castle '99 provides no illucidation on what is meant by "flavor" of Valencia in Castle '99. Thus, the '99 article does not address the problem of maintaining good flavor attributes and avoiding the development of bad flavor attributes when processed into NFC juice through a procedure which includes pasteurization. Furthermore, the Castle '99 article does not indicate what is meant by "flavor". This does not teach that same would have "overall quality" sensory scores greater than Hamlin, Hughes Valencia or Rhode Red Valencia when processed into NFC juice.

In the first few lines on page 5 of the Office Action, it is suggested that the claimed properties are inherent. Whether or not this is an accurate assessment, applicants respectfully observe that novel chemical compositions are not found to be obvious because of their properties. If a novel chemical composition has properties not heretofore recognized, the chemical composition can nevertheless be found to be unobvious, particularly where the "inherent" properties are particularly advantageous and will solve a long-standing problem. The present invention is directed to what is in effect a novel chemical composition, the combination of the mid-season NFC juice and other NFC juice(s). This composition has important heretofore unrecognized properties, namely the gap-filling abilities in the mid-season and the superior sensory qualities which are discussed herein, in the specification, and recited in the claims.

The Declaration of William S. Castle is indicated by the Office as relating to locating and identifying "early maturing cultivars whose juice color and other chemical properties would make them suitable for early season harvesting and for use in various processed orange juice products." The Office also indicates this Declaration refers to the practice of mixing juices. This Declaration does not address the mid-season NFC gap problem solved by the present invention. This does not recognize the difficulties of maintaining sensory qualities during pasteurization into NFC juice and under commercial conditions. In fact, this Declaration does not recognize the claimed sensory quality properties.

The Office indicates that Tresser describes various seasons for oranges to mature. This disclosure is similar to

information found in the introductory portions of applicant's description. Furthermore, the reference on page 64 of Tresser relates to "from concentrate" (FCOJ) products and not to NFC products.

Lafuente et al. '597, another secondary reference, does not lead one of ordinary skill in the art to solving the mid-season NFC sensory gap problem.

The last-listed secondary reference is the Pao et al. article. This article does not relate to NFC juices. The Pao et al. article relates to a study to improve qualities of early season Hamlin orange juice and Marsh grapefruit juice. It relates to only "individual and blended unpasteurized" citrus juices. It provides no suggestion of Vernia cultivars or Vernia and/or Frost cultivars, of using same to fill the NFC gap between the Hamlin NFC orange juice season and the Hughes Valencia and Rhode Red Valencia NFC orange juice season, and it provides nothing whatsoever to suggest that Vernia NFC juice or Vernia and/or Frost NFC juice provide an NFC juice which is advantageously blended with other juices and which blends are superior to the other freshly extracted juices available in the mid-season time period for making and made into NFC juice.

Tertiary References

The Atkins et al. patent is indicated by the Office as showing that it is known "to blend early and mid-season cultivars with the Valencia orange juice". The Office references lines 22-35 of column 9 of this tertiary reference. It is respectfully understood that the sentence of particular interest to the Office is at lines 33-35. Firstly, it is

unclear if the term "mid-season" is understood by one of ordinary skill in the art to be the type of cultivar which is harvested during the mid-season time period of the present claims. Aside from that, applicants do not dispute that it has been known to blend early season juice, such as Hamlin with Valencia orange juice. This is acknowledged in applicants' papers. It is perhaps more important to note that, whatever Atkins et al. intend to characterize as "mid-season" orange juice in this passage, Atkins et al. acknowledge the problem that is solved by applicants' invention. Atkins et al. state that such mid-season juice is somewhat lower in quality and used mostly for blending with higher quality Valencia juice. Applicants claim just the opposite: it is the mid-season NFC juice of the claims which is the higher quality NFC juice of the blend.

Chenchen et al. is cited as disclosing it is known to blend juices to achieve a particular BAR. This Chenchen et al. tertiary reference is not useful in removing the deficiencies of the primary references or of the secondary references, particularly with respect to solving the specific mid-season NFC gap problem and providing a mid-season NFC juice which has superior sensory qualities as discussed herein.

The Castle field day article is presented by the Office on page 6 of the Office Action as showing, on page 7 of the article, characteristics such as soluble solids, and on pages 9 and 12, color and flavor. Page 7 of this Castle tertiary reference reports on various rootstocks onto which Hamlin buds were grafted. This refers to the Hamlin early season orange and to variations which occur when same is grafted onto different rootstocks. They are still Hamlin cultivars. Neither page 9

nor page 12 have any information regarding Vernia or Frost cultivars. Both of these pages do have some color information. As with the other references, the Castle field day paper does not discuss anything about NFC juices.

The Castle Declaration, applied as a tertiary reference on page 6, was discussed above as a secondary reference. Again, the Castle Declaration does not relate to mid-season products, nor does it give specific information that Mr. Castle was aware of sensory characteristics as claimed. Clearly, he does not allege that he appreciated the NFC sensory characteristics as claimed --or the NFC sensory gap filling superiority of Vernia and/or Frost NFC juice-- at a time prior to applicants' invention. Applicants remind the Office that this Declaration is dated 12 November 2001. It is not prior art.

Pio et al. is relied upon by the Office as disclosing that testing of oranges to determine particular characteristics is known. Clearly oranges can be tasted and tested. This does not mean that the art, at the time of the Pio et al. article appreciated the problems associated with making oranges into NFC juice and subjecting orange fruit to harsh conditions including commercial extraction and pasteurization or that there was any indication at that time of sensory evaluations or that there was a gap at mid-season in NFC production. In fact, as noted in paragraph 16 of the Declaration of James H. Keithly, NFC juice was not produced in Brazil at the time of the Pio et al. article, dated 1982, and that this article does not concern NFC juice.

MPEP and Decisional Law Unobviousness Criteria are Met

Until the solution achieved by the present invention, the problem which applicants recognized of providing an improved NFC juice from cultivars extracted in the mid-season "gap" was not fulfilled in the NFC industry. Nothing in the record teaches or suggests otherwise.

The unobviousness of the presently claimed methods and products is further illustrated by the failure of cultivars other than those which are starting materials in the claimed invention. From teachings and data in the record, the juice yield, juice chemistry (including BAR) and color indicators of blood oranges and Ambersweet indicate each is a good candidate for NFC juices. However, information in the record shows that when blood oranges or Ambersweet oranges were used in NFC processes, they were found to have sensory qualities less desirable than those of NFC Hamlin orange juice, the earlier peak season industry standard cultivar. The claims specify that the claimed NFC juice compositions have sensory qualities and BAR values which are superior to those of the earlier peak season Hamlin orange juice.

As supported in the present record, there is no reasonable expectation that juice from cultivars having good yield, good color and good juice chemistry values can be predicted to be suitable as a starting material for the claimed NFC methods and products. Non-claimed cultivars in fact give very poor results when thus used.

MPEP §2143.02 states that a reasonable expectation of success is required to make a *prima facie* obviousness rejection. This section further notes that at least some degree of predictability is required and that evidence showing there was

no reasonable expectation of success may support a conclusion of nonobviousness. *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976). See also, *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed.Cir. 1991).

As noted in *In re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ2d, 1529 (Fed. Cir. 1988):

Both the suggestion and the expectation of success must be found in the prior art, not in applicant's disclosure.

Where technology is unpredictable as is the case here, it is less likely that similar species will render a claimed species obvious. Any properties which might have been expected must be balanced against the unexpected properties. *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978). Here, properties mentioned in the prior art (high color, acceptable juice chemistry, good yield and general subjective flavor observations for non-NFC juice) do not render the claims obvious in view of the unexpected mid-season NFC sensory gap filling features of the claimed invention.

Applicants have submitted objective evidence of secondary considerations including unexpected results, long-felt need and failure of others. This objective evidence must be fully considered by the Office. MPEP §2141.

Concerning unexpected results, data provided by applicants show lack of success for cultivars not in the claims in solving the problem which the invention of the present claims has solved. The failure of others in fulfilling the long-felt need is well-documented by the Ambersweet activities of some of the cited references themselves as noted in the record and by the

failure of blood oranges of a Bonaventura to maintain its promising properties when used in NFC processing.

In re Rijckaert, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993) held that **obviousness cannot be predicated on what is not known at the time an invention is made, even if the inherency of a certain feature might be later established**. See also MPEP §2141.02. More particularly, it is not proper for the Office to assume properties or features not disclosed in the prior art. As recognized in *Rijckaert*, obviousness cannot be predicated on what is unknown, citing *In Re Spormann*, 363 F.2d 444, 150 USPQ 449 (CCPA 1966). A retrospective view on the suitability of certain cultivars for achieving the claimed invention is not a substitute for an actual teaching in the prior art. See *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989).

Claimed properties cannot be assumed. A property such as having NFC sensory qualities which are superior to specific other NFC juice sources can be an obvious property only if that property is actually disclosed in the prior art, and a person of ordinary skill in the art must recognize its presence. *Crown Operations International Ltd. v. Solutia, Inc.*, 289 F.3d 1367, 62 USPQ2d 1917 (Fed. Cir. 2002). (Prior art references did not disclose or discuss a particular reflectance property of the claims, and that property cannot be assumed because the prior art discloses the same structure as claimed in the patent.)

Furthermore, when a measured property serves to point up a distinction from the prior art, or advantages over the prior art, that property is relevant to patentability, even if same is an inherent property of the claimed invention. *In re Glaug et al.*, 283 F.3d 1335, 62 USPQ2d 1151 (Fed. Cir. 2002).

There are shortcomings in the cited prior art. Applicants' own disclosure may not be used to make up for those shortcomings of the prior art. Evidence of properties of the cultivars must come only from the prior art. The standard of obviousness is not that something is "not inconceivable". Conceivability alone will not establish obviousness. *In re Grabiak et al.*, 769 F.2d 729, 226 USPQ 870 (Fed. Cir. 1985).

As recognized in MPEP §2145, it is improper to apply an "obvious to try" rationale in support of an obviousness rejection. As noted in that section, it is not proper to base an obviousness determination on whether it would have been obvious to:

try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. (MPEP §2145 citing to *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988)).

Here, the references do not teach any solution to the mid-season NFC gap problem. See also, *Pin/Nip, Inc. v. Paltte Chemical Company*, 304 F.3d 1235 (Fed. Cir. 2002) (Federal Circuit affirmed that a patent claim was not invalid as obvious. If "obvious to try" were a proper rationale, invalidity might have been found.)

The prior art cited against the present application cannot be used to render the present claims obvious by using an "obvious to try" approach.

Conclusion On Unobviousness

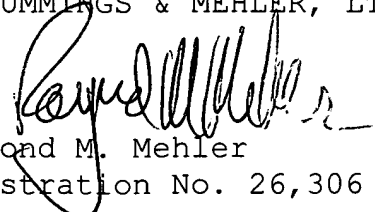
In summary, the methods and products of the present claims did not exist prior to the present invention. These novel methods and products are unobvious when one considers the invention as a whole, without the benefit of hindsight, and without applying an "ought to be tried" standard. *Hodosh et al. v. Block Drug Company, Inc.*, 786 F.2d 1136, 229 USPQ 182 (Fed. Cir. 1986). Even if it were proper to combine several references to the extent presented in the Office Action, these several reference together do not show a reasonable expectation of success in achieving this claimed invention. Objective secondary considerations such as those in the record help to illuminate that the present claims are unobvious and are not properly rejected under 35 USC §103. *Hodosh, Id.*

Reconsideration and withdraw of the Section 103 rejection are respectfully requested, as is the allowance of claims 1-21, 23-26 and 28-31.

Applicants have made an earnest endeavor to place this application into condition for allowance, and favorable consideration is respectfully requested.

Respectfully submitted,

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